

Please cite this paper as:

Sutinen, J. G. (2008), "Major Challenges for Fishery Policy Reform: A Political Economy Perspective", *OECD Food, Agriculture and Fisheries Working Papers*, No. 8, OECD Publishing.
[doi:10.1787/242275787821](https://doi.org/10.1787/242275787821)



**OECD Food, Agriculture and Fisheries
Working Papers No. 8**

Major Challenges for Fishery Policy Reform

A POLITICAL ECONOMY PERSPECTIVE

Jon G. Sutinen^{*}

**MAJOR CHALLENGES FOR FISHERY POLICY REFORM:
A POLITICAL ECONOMY PERSPECTIVE**

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**OECD TRADE AND AGRICULTURE
WORKING PAPER 2008/8**

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ABSTRACT¹

A political economy perspective of fisheries governance is presented in this paper. In most countries, formal and informal linkages exist among four components of the governance system. The legislature passes laws that authorise the implementation of policies and programmes by a fisheries agency. The fisheries agency establishes a fisheries management authority. Stakeholders often have a formal role – from advising to decision-making – in the management plan development process and approved plans are implemented by the fisheries agency. In general, governance failure (that is, undesirable public policy outcomes) has been attributed to special interest effects, rational voter ignorance, bundling of issues, shortsightedness, decoupling of costs and benefits, and bureaucratic inefficiencies. No studies demonstrate whether private interests significantly influence fishery policies and regulations, but evidence from other sectors suggests that this is very likely.

One of the features that distinguishes the fishing industry from other regulated activities is that often there are no strong property rights, and regulation seeks to prevent overexploitation of a common pool resource (CPR). Fishers, in effect, impose costs on each other rather than on consumers, in the absence of regulation. A laboratory experiment was designed to simulate lobbying to influence regulation of a CPR. Results show that competition for fishery earnings weakens the incentive to effectively lobby for regulations that maximise group well-being. More experienced participants believe that their contributions to changing a regulation are not worthwhile. Instead, they focus more on competing for earnings from their use of the CPR.

Correcting or mitigating government failure in fisheries might be assisted by the introduction of strong property rights, the devolution of rights and responsibilities to user groups, the use of the cost recovery and sustainable financing mechanisms, and for shielding fishery managers from the shortsighted tendencies of elected officials. But these recommendations may have difficulty in being implemented in the face of strong opposition from private interests in the fishery.

¹ This is a presentation made by Professor Jon G. Sutinen at the Jubilee 100th Session of the Committee for Fisheries on 29 October 2007.

LES GRANDS DÉFIS DE LA RÉFORME DE LA PÊCHE : ÉCONOMIE POLITIQUE DE LA RÉFORME

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RÉSUMÉ¹

Une analyse de la gouvernance des pêcheries sous l'angle de l'économie politique est présentée dans ce document. Dans la plupart des pays, il existe des liens formels et informels entre les quatre composantes du système de gouvernance. Le Parlement vote des lois autorisant les autorités compétentes de la pêche à mettre en œuvre des politiques et des programmes. Ces autorités compétentes de la pêche établissent un organisme de gestion des pêches. Les parties prenantes jouent souvent un rôle officiel — variant du conseil à la prise de décision — dans le processus d'élaboration des plans de gestion ; les plans approuvés sont mis en œuvre par les autorités compétentes de la pêche. En général, les échecs de gouvernance (à savoir les résultats indésirables des mesures adoptées par les pouvoirs publics) sont mis sur le compte des intérêts particuliers, de l'ignorance des électeurs, du regroupement des problèmes, de l'absence de vision, du découplage des coûts et des avantages et de l'inefficacité bureaucratique. Bien qu'aucune étude n'ait démontré que les intérêts privés influent sensiblement sur les politiques et la réglementation de la pêche, ce que l'on a pu observer dans d'autres secteurs laisse à penser que cette influence est très vraisemblable.

Le secteur de la pêche se distingue d'autres activités réglementées notamment par l'absence fréquente de droits de propriété solidement établis et par le fait que la réglementation tente d'éviter la surexploitation de ressources communes. En l'absence de réglementation, les pêcheurs font en fait peser des coûts les uns sur les autres plus que sur les consommateurs. Une expérience en laboratoire a été conçue pour simuler les activités de groupes de pression destinées à influencer sur la réglementation des ressources communes. Les résultats de l'expérience montrent que la compétition entre pêcheurs pour réaliser le maximum de profits diminue leur volonté de faire pression en faveur de règlements qui maximiseraient le bien-être du groupe. Des participants plus expérimentés estiment que leur contribution à la modification de la réglementation ne présente aucun intérêt. Ils s'attachent en fait davantage à se disputer les profits de l'exploitation de la ressource commune.

L'introduction de droits de propriété solidement établis, la délégation des droits et des responsabilités aux groupes d'utilisateurs, le recours à la récupération des coûts et à des mécanismes durables de financement et la protection des gestionnaires des pêches contre la tendance des élus à raisonner à court terme pourraient contribuer à corriger et à réduire l'échec des pouvoirs publics. Néanmoins, ces recommandations risquent de ne pouvoir être mises en œuvre aisément face à la forte opposition des intérêts privés dans le secteur de la pêche.

¹ Communication de M. Jon G. Sutinen présentée à la 100^e session anniversaire du Comité des pêcheries, qui s'est tenue le 29 octobre 2007

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MAJOR CHALLENGES FOR FISHERY POLICY REFORM: A POLITICAL ECONOMY PERSPECTIVE

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Introduction

1. I had the good fortune to work with the OECD Fisheries Committee during the mid-1990s on the preparation of the report *Towards Sustainable Fisheries: Economic Aspects of the Management of Living Marine Resources*, published in 1997. In its statement on the study, the Fisheries Committee explained that it had reviewed the effects of most management measures in OECD Member countries with respect to economic, biological, social and administrative consequences. A key finding cited by the Committee was that

[I]n order to alleviate fisheries problems it would be useful to introduce rights based management systems (e.g. transferable individual licenses, individual quotas, and exclusive area user-rights). For example, individual quotas resulted in improved stock conservation, reduction in overcapacity and race-to-fish, and hence in overall better economic performance.²

2. At the time of my involvement in the OECD study, I was working on the assumption that information drove policy. In other words, I believed that the solution to the problems of fishery management was more and better information. Provide management authorities with sufficient information and they will make the 'good' decisions. Being from the Ivory Tower, I was not very familiar with the 'real politick' of the world of fisheries policymaking.

3. It occurred to me that the evidence in the study clearly demonstrated that the global fishery management community had the tools for effectively conserving fish stocks and producing good, sustainable economic performance. I began to search for an explanation for why these tools – specifically rights-based management systems, such as individual fishing quotas – had not been implemented on a wider scale. Much of the evidence of their superior performance had been available for some time. It was not new.

4. I wondered why the strength of the evidence had not enabled or induced management authorities to implement better policies. If we know what management measures work well, why are those management measures not used more commonly? Despite thirty years of fishery management programs since extended jurisdiction, most coastal nations have not yet mastered ways to control fishing effort and

² A summary of the results of the study is presented in Sutinen (1999).

maintain healthy fish stocks. Why is this? Why have governments consistently failed?³ I began to search for answers to these questions, and this quest led me to the body of thought on political economy.

5. I have applied the political economy perspective in a few papers. The first paper I wrote on this (Sutinen and Upton 2000) applied the perspective in an attempt to explain the tortured history of fishery management in New England. A second set of papers (Andersen, Sutinen, and Cochran 1998; Andersen and Sutinen 2003) applied the perspective to the issue of financing fishery management programs, which present the argument that creative use of finance mechanisms can not only raise revenue but can mitigate tendencies of both market and government failure in fisheries. Third, in Sutinen and Soboil (2003) I speculate on the implications of applying the ecosystem approach to fisheries management, given the apparent political economy forces at work.

6. In this paper, I examine the record of fisheries management and apply a political economics perspective developed in Sutinen and Soboil (2003) to identify some structural weaknesses in common structures of fisheries policy and management. This is followed by a deeper investigation of one aspect of political economy – the influence of interest groups on policy – with an explanation of recent experiment research we have conducted at the University of Rhode Island.

7. Before proceeding, let me explain what I mean by political economy. As used by contemporary economists, and some political scientists, political economy assumes that participants in the public as well as the private sector respond to incentives. Much like conventional economics views consumers and producers as acting in their individual best interests, political economy is based on the notion that elected officials, civil servants, and others in the public (government) sector make choices that serve their individual interests. Building on this idea, political economy develops theories and constructs empirical analyses to investigate how various incentives influence public policies, regulations and other such outcomes.

Patterns of fishery management performance

8. I begin by summarizing some of the evidence on the status of fisheries, outcomes that reflect the performance of fishing management institutions. The FAO (2006) estimates that in 2005, one-fourth of marine fish stocks were overexploited, depleted or recovering from depletion; just over half were fully exploited; and slightly less than one-fourth could tolerate more catch. The trends are not comforting. From the mid-1970s to the present, the proportion of overexploited and depleted stocks has increased 2.5 times, and the proportion of stocks offering potential for higher catches has declined (from 40% to about 23%). There are many causes of the deteriorating status of these fish stocks. But overfishing remains the number one threat to many of these marine fish stocks.

9. Excess fishing capacity drives overfishing, where too many highly productive fishing vessels are harvesting from fish stocks that are dwindling in size and in number. In addition, there are high rates of discards, some caused by regulations that appear to be wasteful to many observers. According to MRAG (2005), IUU fishing amounts to 5-19% of global landings, and further aggravates the pressure on fish stocks. And, user conflicts in fisheries are commonplace, especially in the context of management policy development and implementation.

10. There are persistent patterns in fisheries decision-making that are troubling. It is common for scientific advice to be ignored in setting policy. Total allowable catch rates (and other regulations that determine the effective fishing mortality) are commonly set above the rates recommended by fishery

³. One answer, or insight to an answer, appeared in Karpoff (1987) published years a few years earlier, but it had not received much attention by fisheries economists and other scholars concerned with fisheries management.

scientists and that are necessary for sustainability. Management authorities too often ignore the evidence on what regulations work best, and select regulations that are too soft to control fishing mortality. Another troubling pattern is the interference by elected officials in setting management policy, often to weaken regulations – an issue that I explore in this paper below.

11. Although there are several bright spots in many fisheries (marginal improvements in stock status, growing use of rights-based management, capacity reduction programs, to name a few), I look at this evidence and conclude that our fishery management institutions have failed to conserve resources and improve the economic health of fishing communities. I suspect that there are some fundamental flaws in the way fisheries are managed.

12. Why do we get these poor outcomes? Why do we have these troubling patterns of decision-making? Why have our management institutions not done better? My earlier efforts to answer these questions have focused on attempting to explain some the patterns of fisheries decision-making by constructing a simple characterization of how fisheries governance systems work.

A Political Economy Perspective of Fisheries Governance⁴

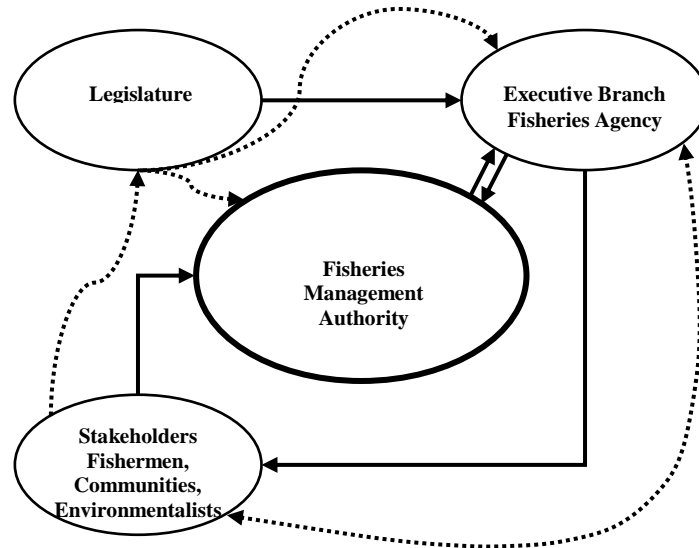
13. The fisheries governance system in most countries consists of both formal and informal linkages among four components of the system. The legislature passes fisheries laws that authorize the implementation of fisheries policies and programmes by a fisheries agency. In turn, the fisheries agency commonly establishes a fisheries management authority to develop fishery management plans that specify the set of management measures that are applied to the fisheries under its jurisdiction. Stakeholders (fishing producers, communities and environmental advocates) usually have a formal role – from advising to decision-making – in the management plan development process. The resultant plans, if approved, are then implemented by the fisheries agency. The solid arrows in Figure 1 represent these formal linkages.

14. In addition to the formal linkages, there are informal linkages – represented by the dashed arrows in Figure 1. As voters who help elect members of the legislature, fisheries stakeholders frequently take their problems and concerns to their elected representatives. If a stakeholder group feels that the fishery management process has not treated it properly, they will ask their elected representative to assist them. The assistance often is in the form of influencing the fisheries agency and/or fisheries management authority. Sissenwine and Mace (2001) refer to this as the ‘end run’ phenomenon. We now examine the political dynamics of the fisheries governance system in more detail.⁵

4. This section contains excerpts from Sutinen and Soboil (2003).

5. The arguments in this section are based on extensive public choice literature, e.g. Buchanan and Tullock (1962); Buchanan (1980); Niskanen (1971); Olson (1964); and Wolf (1988).

Figure 1. Fisheries Governance System



15. In most democracies, political decisions are produced by a legislative process. Voters elect representatives to guide government policies and actions; agencies are formed; and bureaucrats hired to implement government policies. These three groups are the major players in the political process, and government policies and actions result from complex interactions among these players. Voters – especially groups of voters with special interests – express their demand for government policy and action. Elected representatives supply legislation (policy) and government bureaucrats implement the programmes and rules specified in the legislation. In the fisheries context, the principle products of this political marketplace are fisheries laws and regulations related to conservation and management, safety, environmental protection, etc.

16. Voters are the consumers of the political process, demanding political products. Voters, groups of voters (that form to pursue their special interests) demand public-sector action to reduce inefficiencies and to redistribute income, usually in a self-interested redistribution. Votes, campaign contributions and lobbying are the currency by which these demands are expressed.

17. Politicians are the elected administrators and legislators in national, state and local governments, including members of executive and legislative branches. Politicians are motivated in part by the need to be elected or remain in power by supplying the political goods that are demanded by voters. Therefore politicians tend to select positions that maximize the probability of re-election.

18. Bureaucrats work at national, state/provincial and local levels as hired officials. Agency employees implement laws, implement regulations and develop programmes. Bureaucrats are motivated in part by self-interest too. They naturally resist downsizing their budget and number of employees, and

commonly attempt to increase the size of their budget and number of employees. To achieve this objective, they often appeal to politicians with programmes that would be favoured by voters.⁶

19. Political equilibrium is reached as voters, politicians and bureaucrats make choices to achieve their own objectives. Both desirable and undesirable public policy outcomes are possible, depending on the underlying incentives of these groups. Governance failure (undesirable public policy outcomes) has been attributed to a number of interrelated causes, including:

1. special interest effects,
2. rational voter ignorance
3. bundling of issues,
4. shortsightedness effects,
5. de-coupling of costs and benefits, and
6. bureaucratic inefficiencies.

20. Special-interest effects occur when a relatively small number of voters make large individual gains at the expense of a large number of citizens who bear small individual losses. Rent seeking occurs when individuals and groups attempt to use the political process to redistribute income from others to themselves. Special interests gain disproportionate power relative to their numbers because they can provide campaign funds, publicity and delivery of voters who are passionate about a particular issue. Meanwhile rational voter ignorance occurs because it is seldom worth the cost for the typical voter to acquire the information needed to make a fully informed voting decision. In addition, the choice of a single voter is seldom decisive when the overall number of voters is large. This further decreases the voter's motivation to acquire more information, while in many cases the individual may not bother to vote at all. These factors induce the politician to favour special interests.

21. The packaging or bundling of the a candidate's positions further accentuates special interest effects and rational voter ignorance. Members of the general public who are relatively disinterested in a specific issue are unlikely to vote on the basis of that issue alone. It is likely that many other issues are of greater importance to him or her, especially when the impact on their welfare is small. Yet members of an interest group are likely to vote strictly according to the issue, especially when it has a significant effect on their welfare. A given political candidacy will be accepted or rejected on the basis of the entire package of positions and not on the basis of a single special-interest issue. Since voters can only express their will through a legislator who represents a bundle of political goods, the political process becomes imprecise with regard to voter preferences. For example, it has been estimated that the typical citizen makes only one public choice decision for each thousand made in the private sector. In addition, politicians often package issues in a complex manner so that most voters will be unaware of the true costs that programmes will impose upon them. However, special interests are likely to be well informed regarding the underlying costs and benefits of a policy that is specific to their interests.

22. Politicians tend to be shortsighted because they face short re-election cycles, of 2, 4 or 6 years.⁷ They are concerned about the consequences of policies and programmes before the next election. The long-term consequences tend to carry little weight in the calculations of the politician. Politicians often exhibit shortsightedness, as for example, by enacting special legislation and appropriations for fisheries, and periodically attempting to directly influence the contents of fishery management plans. Shortsightedness is a natural attribute of a politician.

⁶. For a study of this phenomenon outside of fisheries, see Johnson and Libecap (1994).

⁷. The term shortsightedness describes the tendency by people to ignore, or give little weight to, future consequences, especially consequences in the medium to distant future.

23. Shortsightedness also is present on the demand side. Fishing interests in most managed fisheries tend to be shortsighted about fishery management policy. In open-access fisheries, fishermen have no secure claim on future outcomes in their fishery. That is, they have no assurance that they will reap the benefits that might accrue from their short-term sacrifices. Fishermen in rights-based fisheries, on the other hand, are expected to be less shortsighted. Fishermen also tend to be shortsighted because of the great uncertainty they face regarding future fishery policies, fish stocks and markets. Fishermen are simply being rational in their shortsightedness.

24. The shortsightedness on both demand and supply sides combines to favour legislation that provides easily identified current benefits at the expense of future costs that are complex and difficult to identify. Conservation, which requires short-term sacrifice in exchange for long-term gains, tends to be disfavoured in this environment.

25. Another characteristic that strongly influences fishery policies and outcomes is de-coupled benefits and costs. Political products have benefits and they have costs. For many fishery products, those who benefit are not those who pay the cost of a product. For other products, benefits accrue at a different point in time from the costs. An example of de-coupled benefits and costs are government-financed vessel buyback programmes, such as the USD 25 million vessel/permit buyout programme in the USA Northeast fisheries. The beneficiaries are the fishermen whose vessels are purchased by the programme and those remaining in the fishery. The costs, on the other hand, are borne by the general taxpayer. The beneficiaries do not pay in proportion to the benefits they receive; and the payers do not benefit in proportion to what they pay.

26. These two characteristics of shortsightedness of the principal actors and de-coupled benefits and costs of fishery products have a powerful influence on the choice of fishery management policies. The presence of shortsightedness and de-coupled costs and benefits works against adoption of effective conservation policies. The structure of the fishery management system tends to disfavour effective conservation policies because they concentrate short-term costs upon resource users in exchange for benefits in the future that would not necessarily accrue to those users who make the sacrifice.

27. There are many examples in which the political marketplace favours fishery policies and programmes where benefits are distributed to a few and the costs are borne by taxpayers. Fishery policies and programmes with short-term benefits, and costs to be borne in the future are also favoured. The political marketplace disfavors policies and programmes for which costs are concentrated on a few and benefits accrue to many; and policies and programmes with short-term costs in exchange for future benefits. The fishery political marketplace can be expected to produce effective conservation policies only when those who sacrifice in the present can expect to receive benefits in the future.

28. Government agencies do not face incentives to produce goods and services efficiently. By cultivating the political influence of powerful politicians and groups of constituents, bureaucrats create opportunities for themselves to lead larger government agencies. While bureaucrats compete for tax revenues, promotions, higher incomes and greater power (just as employees do in the private sector), they do not face incentives to increase the value and decrease the costs of their outputs. Public employees cannot increase their income by improving the efficiency of the agency, and their job performance is usually difficult to measure (at least in terms of the contribution to the agency's output). As a result, they tend to be less conscious of costs, especially since they are spending other people's money. There is no need to compare revenues with costs; there is no measure of inefficiency and no pressure to reduce it. The incentives inherent in government agencies leads to inefficient production of government goods and services.

29. In addition, government is often the sole provider of the good or service. The exclusive right of production is often mandated by law. Education and postal services in the USA are exceptions. In general, the lack of constant competition for customers leads to inefficiency in government production.

30. Unlike the private sector, there is no systematic mechanism to weed out governmental inefficiencies. In the private sector, inefficient firms do not survive – they go bankrupt. In the public sector, agencies with high costs or that cannot meet their targets are often rewarded with increased funding. Agencies that reduce costs and do not spend their budget allocation are penalized with the threat of a smaller budget the following year.

31. The general and rather superficial analysis in this section is based on some critical assumptions. Perhaps the most critical assumption is that private fishing interests diverge from public fishing interests, and that private interests do in fact influence policy outcomes. To investigate the validity of this assumption, I turn next to private (or special) interest effects on regulation – the first cause of government failure discussed above. My principal purpose is to determine the likely extent of the private interest effect in fisheries, and to explore what consequences it may have for reform of fishery policy reform.

Political Economy of Regulation and Management

32. The contribution of George Stigler on the economic analysis of regulation is a useful place to begin this discussion. The Royal Swedish Academy of Sciences awarded the 1982 Alfred Nobel Memorial Prize in Economic Science to Professor George Stigler for, among other contributions, ‘his seminal studies of ...[the] causes and effects of public regulation.’ The Academy’s press release reads

[In his] studies of regulatory legislation, Stigler has emphasized its causes rather than its effects.⁸ Preliminary observations led him to the hypothesis that, in practice, some regulations protect firms, organizations and professional and occupational groups - i.e., producer interests - instead of the general public that, according to stated motives, they were intended to protect. Stigler himself found firm empirical support for this hypothesis in a number of studies; it is still too early to assess its ultimate scope. But Stigler's results do show that legislation can also be an outflow of market participants' optimizing behaviour. To the extent that this is so, *legislation is no longer an "exogenous" force which affects the economy from outside, but an "endogenous" part of the economic system itself.* [Emphasis added.]

33. Stigler changed the way economists and many political scientists analyze public policy and government regulations. At the time, in the 1960s and before, economists and others assumed, or took on faith, that the government acted strictly in the public interest to, among other things, correct market failures. The applied studies of the time were descriptive and tended to explain how regulations attempted to constrain deviations from marginal cost pricing. Stigler and his colleague devised a way to empirically test the extent to which regulation constrained prices by electrical utilities (Stigler and Friedland 1962). This work triggered a great deal of work that estimated the effects of regulation of many kinds.

34. Subsequent research provided substantial evidence of the effects of regulations, but in ways contrary to the prediction of the public interest model of government regulation. Instead, the evidence supported the hypothesis of protecting producers, rather than the public interest. As the evidence mounted,

⁸. According to Peltzman (1993), there are two key articles that essentially embody Stigler’s contribution: his analysis of electricity regulation (Stigler and Friedland 1962) and a later theoretical analysis (Stigler 1971).

the view of the government regulator as protector of the public interest was revised to one in which the regulator was 'captured' by the regulated parties.

Political Economy Theories of Regulation

35. Although the notion of regulatory capture was not new, there was no systematic explanation of why and how it occurs. Stigler, in his 1971 article, provides the first explanation build on the first principles of economics – namely that participants in the regulatory process respond rationally to incentives. Stigler's theory assumes that self-interest motivates politicians and bureaucrats, that they are motivated by the desire to survive and expand their power and prestige. Politicians' ability to achieve their objectives depends on their capacity to be elected and reelected to office. Votes are the maximand of the politician just as profits are the maximand of the firm. By acting in the self-interest of their constituents, politicians increase their chances of surviving and expanding their power and prestige.

36. There are two prominent theories that scholars use to explain regulatory changes. Public interest theory, the older, holds that government regulates market participants to correct market failure and maximize society's well-being. Private interest theory (due to Stigler and extended by Pelzman and others), in contrast, holds that the government regulatory process is strongly influenced by private interest groups to shape regulations to serve their ends. Other theories hold that beliefs and ideology, and the institutional constraints of the process, determine regulatory outcomes.

37. According to the private interest theory of regulation, organized private interest groups are able to influence the policy-making and regulatory (management) processes to secure gains at the expense of a large number of citizens who bear small individual losses. Private interests are able to gain disproportionate power relative to their numbers because they can provide campaign funds, publicity and delivery of voters who are passionate about a particular issue. Meanwhile rational voter ignorance occurs because it is seldom worth the cost for the typical voter to acquire the information needed to make a fully informed voting decision, or to participate in the regulatory process. In addition, the choice of a single voter is seldom decisive when the overall number of voters is large. This further decreases the voter's motivation to acquire more information, while in many cases the individual may not bother to vote at all. These factors induce elected officials, their agents the bureaucrats, and the process to favor special interests. The outcome is that policies and regulations tend to serve the interests of the well-organized private interest groups, often at the expense of the public interest.

Evidence on the Political Economy of Regulation

38. The early work by Stigler and others on the theory of regulation has spawned a voluminous body of empirical analyses aimed at testing the competing theories. Since space limitations preclude a comprehensive review of this literature, I briefly summarize a sample of the more recent literature to illustrate the influence that pressure groups tend to have on public policy regulation.

39. I group the reviews into three categories: general (non-natural resources and non-environmental); environmental; and fisheries.

General regulation

40. In the case of cell phone price regulation in the US, Duso (2005) provides 'robust evidence that firms' lobbying activities against a regulated environment were successful.' Also, he shows that price regulation, where applied, was not effective, 'because of firms' lobbying activities to avoid a regulated environment.' Similarly, Esfahani (2005) finds that although there are other factors that influence protectionist trade policies, campaign contributions by interest groups significantly influence these policies.

41. Kroszner and Strahan (1999, 2000) find that the private interest theory of regulation best accounts for the pattern of bank branching deregulation in the United States during the past 30 years. An interesting feature of their analysis is the rivalry of competing interests in the industry, which they show is a key determinant in determining outcomes. They conclude that such intra-industry competition can 'increase the likelihood of beneficial reform.' The 'divide and conquer' strategy that was used split industry interests, and set up a situation in which rival groups battled each other, weakening overall opposition to proposed reforms.

42. Kroszner and Stratmann (1998) present and test a theory of legislative organization. The theory hypothesizes that legislators desire the formation of specialized standing committees, with the ability to stay on committees as long as they wish. Committees foster repeated interactions, reputation building, and long-term relationships between the interest groups and members of the relevant committee, thereby increasing the likelihood that a high-contribution, high legislative effort equilibrium will exist. On the House Banking Committee of the US Congress, competing interest groups give large amounts of campaign contributions to different committee members. In contrast, for legislators who are not members of the Banking Committee, competing interest groups (Political Action Committees) simply match each others' low level of contributions. As each member of the House Banking committee develops his reputation through time (which reduces uncertainty), the sources of PAC contributions for that member become more concentrated in one of the competing groups. When the probability of termination of the ongoing relationship rises as with older committee members and those who announce retirement or a change in committee affiliation, the concentration and level of financial services' PAC contributions decline. Finally, legislators who cannot or do not develop clear reputations, as measured by the extent of the concentration of their sources of PAC contributions, find Banking Committee membership less valuable and are therefore more likely to switch to another committee. A follow up empirical analysis by Stratmann (2002) indicates that campaign contributions do influence votes by legislators on financial services legislation in favor of the contributors' positions.

Environmental regulation

43. Tanguay *et al.* (2004) show, through empirical analysis of 22 OECD member countries' environmental policies, that pressure groups influence environmental regulation. They also compare the public interest theory of regulation with the economic (i.e., Stiglerian) theory of regulation and find that the economic theory predominates. Similarly, Esfahani (2005) finds that although there are other factors that influence protectionist trade policies, campaign contributions by interest groups significantly influence these policies.

44. Using data from 35 developed and developing countries, Binder and Neumayer (2005) present evidence that environmental NGOs have a statistically significant effect on reducing air pollution in the form of SO₂, smoke, and heavy particulates. Similarly, Fredriksson *et al* (2005) provide empirical evidence that lobbying by environmental interests is associated with stringent environmental policy in developed and developing countries.

45. Cooper *et al* (1992) analyzes bureaucratic environmental rulemaking by the US Environmental Protection Agency (EPA), and how interest groups' demands influence pesticide regulations in the U.S. They find empirical evidence that regulators account for both special interests and the welfare of the general public when setting environmental standards; and that political intervention by environmental groups and firms affect environmental policy outcomes. This suggests that regulatory outcomes depend on the relative strength of private interest groups and environmental interest groups.

46. Maloney and McCormick (1992) show theoretically that quantity restrictions (aka, standards) create a cartel-like situation that allows firms to earn more profits and capture scarcity rents. Their

theoretical prediction is supported by an empirical analysis of data from the U.S occupational, safety, and health administration, cotton standards, and court-mandated rule changes in air quality regulation.

Fisheries regulation

47. There are no studies that empirically test theories of regulation in fisheries; and there are only a few that apply variants of the private interest theory to explain outcomes in fisheries. Perhaps the first such study is by Karpoff (1987) who argued that fishing firms prefer command and control regulations because they redistribute fishery benefits to politically dominant, but not necessarily the most efficient, firms in the fishery. Karpoff's analysis suggests that imperfect regulations persist because they generate substantial benefits to politically dominant firms whose rent-seeking activities block attempts to adopt efficient fishery regulations.

48. Sutinen and Upton (2000) apply an extended variant of the private interest theory of regulation to analyze the economic performance of New England fisheries. Soft management regulations allowed the combined landings and real value of managed species to decline by 80% and 60% respectively, while those of unmanaged species increased throughout the period (1980-2000). They attribute fishery mismanagement to combination of political and economic factors which engage shortsightedness on the part of policymakers and resources and decoupling of costs and benefits of fishery management.

49. Powers (2005) analyses strategic interaction in U.S Fisheries Management Councils using a bargaining model with opportunities for litigation. He shows that "bargaining power favoring one constituent group could lead to Council outcomes that deviate from management policy" a result that is consistent with the private interest theory of regulation. No empirical test of the hypothesis is provided, however.

50. The empirical analyses of participation rates of fishing firms in fisheries meetings with costly participation by Turner and Weninger (2005) provides insights regarding the characteristics of firms more likely to invest in attempts to influence fishery regulations. Using data from Mid-Atlantic surf clam and ocean quahog fisheries, they find higher participation rates among firms which are large, influential, and closer to fishery public meetings. Also, firms with preference for an extreme policy are more likely to attend meetings with costly participation than firms with moderate policy preferences. They suggest that reforms to the public comments process that emphasize participation marginal costs but ignores qualitative changes in attendance decisions is unlikely to reduce the influence of extremists over fisheries regulation and management decisions.

51. While there are no studies that clearly and conclusively demonstrate whether private interests significantly influence fishery policies and regulations, the conclusive evidence from studies of other sectors suggests that this phenomenon very likely prevails in fisheries as well. The following data on lobbying expenditures by US fishing interests further suggests that this is the case.

Lobbying expenditures in the U.S. Fisheries Sector

52. According to Bwalya (2005), data compiled by the U.S. Center for Responsive Politics for 1997 through 2000 show that approximately 44 lobbying (organizations plus hired lobbyists) were registered in the fisheries and wildlife sector. The annual average lobbying expenditure over this period stood at USD 1.2 million.⁹ All reported lobbying expenditures in the fishery sector were made by or through

⁹. In the United States, the lobbying Disclosure Act of 1995 requires lobbying firms to report an estimate of income, to the nearest USD 20 000, from lobbying bi-annually. Likewise, organizations which hire lobbyists are required under the same Act to report biannually their lobbying related expenses in excess of USD 10 000.

associations of fishermen and processors. In addition to lobbying expenditures, fishing firms also made contributions to Political Action Committees and ‘soft money’ contributions to local political parties. The fishery sector contributed about USD 280 000 and USD 30 000 in PAC and soft money contributions, respectively. In total, the fishery sector spent about USD 1.5 million annually.

53. Table 1 from Bwalya (2005) shows lobbying expenditures in the energy and natural resources sectors. During the same period, lobbying expenditures averaged USD 150 million annually. The electric utilities and oil and gas industries account for 46% and 39% of total lobbying expenditures in the sector respectively. Of the remainder, the fisheries sector accounts for the lowest share (0.8%).

Table 1. Lobbyist Spending in Energy and Natural Resources Sector

Industry	Total spending (% of total)			
	1997	1998	1999	2000
Electric Utilities	59 332 570 (41.4)	67 293 120 (45.30)	71 286 595 (45.22)	78 143 861 (52.61)
Environmental srvs/equipment	1 094 741 (0.76)	1 295 000 (0.87)	2 069 000 (1.31)	3 002 000 (2.02)
Fisheries & Wildlife	1 232 710 (0.86)	1 633 957 (1.10)	847 000 (0.54)	1 075 603 (0.11)
Mining	8 803 100 (6.14)	9 229 100 (2.14)	8 830 000 (5.60)	7 520 000 (5.06)
Misc. Energy	6 746 850 (4.71)	8 657 200 (5.83)	11 573 277 (7.34)	16 023 850 (10.79)
Oil and Gas	63,088,028 (44.04)	57,816,393 (38.92)	60,444,428 (38.34)	50,451,366 (33.97)
Waste Management	2 968 957 (2.07)	2 501 848 (1.68)	2 600 600 (1.65)	3 151 139 (2.12)
Total	143 266 956 (100)	148 526 618 (100)	157 651 350 (100)	148 526 618 (100)

Source: Center for Responsive Politics, www.opensecrets.org/lobbyists/, dated 10/2/2004.

54. For a proper comparison across sectors, Table 2 reports lobbying expenditures as percentage of industry value added for utilities and mining, and gross landed value for the fishery industry. Although mining (including oil and gas) dominate, the differences are not that remarkable. In fact, the proportion of lobbying expenditures in the Fisheries and Utilities (mainly electric utilities) sectors are similar. This suggests that lobbying by the fishery sector is as prevalent as by other industries in the energy and natural resources sector.

Table 2. Lobbying Expenditures as a Percentage of Valued Added in Selected Natural Resource Industries

Industries		1997	1998	1999	2000
Fisheries only	Gross value #	3592	3221	3576	3674
	lobbying exp	1.233	1.634	0.847	1.076
	% landed value	.034	.051	.024	.029
Mining (including oil and gas)	Value added	92600	74800	85400	121300
	lobbying exp	71.891	67.046	69.274	57.971
	% of VAD	0.078	0.090	0.081	0.048
Utilities (mainly Electric)	Value added	179600	180800	185400	189300
	lobbying exp	66.079	75.950	82.860	85.664
	% of VAD	0.037	0.042	0.045	0.045

Note: # denotes that total landed value of all fish species is rounded off to the nearest million dollars because the valued added figures for fisheries are combined with forestry. Lobbying expenditures and value added figures are in millions of dollars.

55. In sum, the theory and evidence supports the notion that private interests are shaping fisheries policies and regulations. The extent and nature of that influence is unknown, however. The key question is whether private interest influence will improve the likelihood of beneficial reforms in the fisheries sector, or weaken those changes.

Testing the Theory: An Experimental Analysis of Lobbying In a Fishery

56. If reform of fishery management institutions is to be effective, the incentives that shape political behavior of fishing interests must be understood and taken into account. From the analysis and discussion above, we have seen that both theory and evidence support the notion that interest groups influence policy and regulations, resulting in outcomes that are often suboptimal. Yet, there remain several unanswered questions about the fundamental drivers of interest groups’ influence on policies and regulations for the management of fisheries.

57. First, can we expect the same forces that are at work in other industries to work same way in fisheries? There is a basic difference between fisheries and most other economic activities that are regulated. In fisheries without strong property rights – which constitute the bulk of the world’s fisheries – fishers are exploiting a common pool resource. In these cases, the principal focus of regulations is to prevent over exploitation of the common pool resource. In other words, there is an intra-group externality where fishermen, in effect, impose costs on each other.

58. This is in contrast to most other cases where producers impose losses on consumers (e.g., in the case of imperfect competition, trade barriers), the general public (e.g., air pollution), etc. In these non-fisheries settings, the regulated group has a joint and common interest in how to influence policy and regulations. The regulations directly reduce the economic returns to the regulated producers in these cases.

59. But, in fisheries, where fishers compete with one another for a shared resource, we expect each fisher to be concerned about how a regulation will affect other fishers who in turn are indirectly affecting itself via stock depletion. How might this difference in the underlying incentives affect fisheries willingness to contribute to a lobbying effort? And, if they do, will they want to strengthen the regulations to prevent/mitigate overexploitation? Or, will they tend to lobby for weaker regulations that will lead to greater stock depletion and lower returns to themselves?

60. To investigate these questions, we designed and implemented a set of controlled laboratory experiments (for more details, see Bwalya, Anderson, and Sutinen 2007). To design the experiment, we first developed the following political economy model of common pool resource regulation and lobbying.

A Political Economy Model of Common Pool Resource Regulation and Lobbying

61. In our model, the number of users is fixed, and each user (fish producer) extracts from the common pool resource (CPR) by choosing their own level of (fishing) effort. A user's payoff is determined by both her/his own effort and the total amount of effort by all users combined.¹⁰ If left unregulated, the incentive is for each producer to choose a level of effort that is higher than that effort level that would maximize her/his and all other users' payoffs, resulting in overexploitation.

62. To mitigate this overexploitation, we assume that a fishery management authority exists that imposes a regulation to cap the maximum level of effort that each producer can apply to the CPR. In other words, no producer can choose a level of effort that exceeds the cap set by the management authority.

63. To allow for producers to influence the regulation, each user is given the opportunity to contribute voluntarily some of her/his income to a fund that is used to pay for lobbying to change the cap. A producer may contribute to lobby for an increase in the cap, for a decrease in the cap, or not contribute at all. The net amount of contributions by all producers determines the intensity and effectiveness of lobbying to change the cap.

64. For example, a small (large) amount of total contributions to increase the cap and no contributions to decrease the cap would result in a small (large) increase in the cap. If the initial cap were set at 2, a small amount of net contributions to increase the cap may raise it to 3; whereas a large amount of net contributions to increase it may raise the cap to 4. A small (large) amount of contributions to increase the cap and a large (small) amount of contributions to decrease the cap would result in a net decrease (increase) in the cap.

65. The model contains four stages (Figure 2). In the first stage, the management authority proposes a cap on effort (the initial cap). In the second stage, producers decide whether and how much to contribute voluntarily to lobbying to change the cap. In the third stage, the contributions are totaled and a final cap is determined. Producers may contribute to either increase the cap or decrease the cap. It is the net amount of contributions that determines whether the cap is changed, and the direction of change in the cap. In other words, the final cap may be the same, higher or lower than the initial cap. In the fourth stage, each producer takes the final cap as binding, selects its effort level, and receives its payoff (determined by the combination of its own effort level and the amount of effort by the other producers). This is a game theoretic model where only the second and fourth stages are strategic. The model is solved for both cooperative and non-cooperative outcomes.

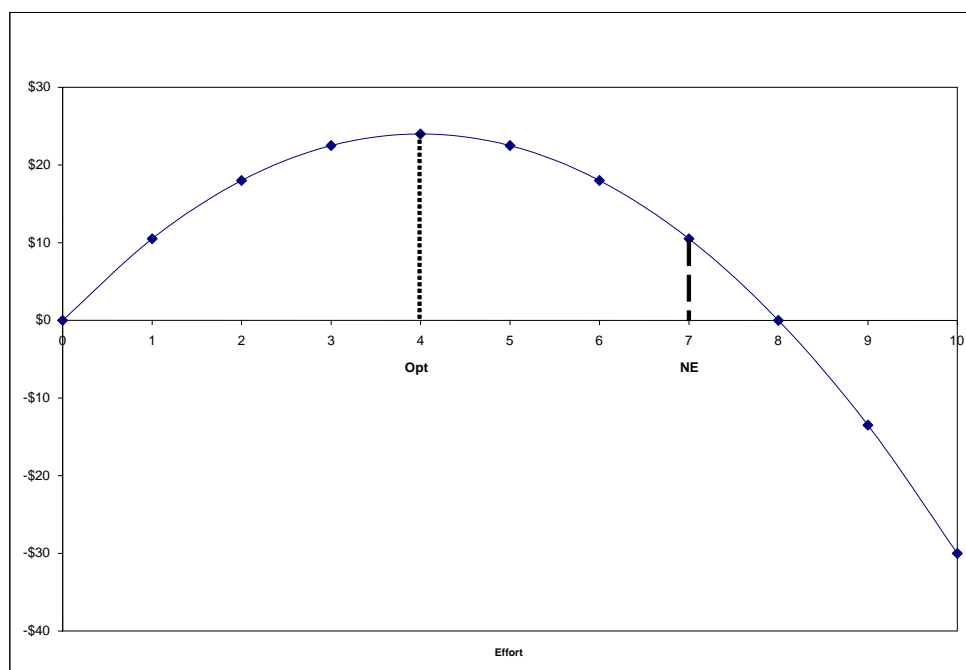
Figure 2. Stages in the Model of CPR Regulation and Lobbying

Stage 1	Stage 2	Stage 3	Stage 4
Management authority proposes a cap on effort (x_0)	Producers decide how much to voluntarily contribute to lobbying to change the proposed cap	Total contributions are used to influence the management authority, which then sets the final cap on effort (\bar{x})	Producers select their effort level and receive payoff (π_i).

10. Each user's payoff function is given by $\pi = ax - bx^2 - (c + dX)x$, where x is the individual's effort, and X is the total effort by all users combined. Also, a , b , c , and d are positive constants.

66. Solutions to the model yield predictions that we tested in a controlled laboratory experiment. The model predicts (1) the equilibrium level of effort and payoff that would result in an unregulated CPR, (2) the group optimal level of effort that would maximize the groups' earnings; and, in a regulated CPR for each of several initially proposed cap levels, (3) the amount of lobbying contributions made by producer, (4) the level of the final cap following lobbying, (5) the level of effort by each producer, and (6) the payoff for each producer.

Figure 3. Payoff vs. Effort



67. For example, the model predicts (given a specific functional form and set of parameters) that, in equilibrium, the unregulated level of effort by each producer equals 7 (labelled NE in Figure 3) with an individual payoff of about USD 10. The level of effort by each individual that would maximize group profits equals 4 (labelled Opt in Figure 3) with an individual payoff of USD 24. In other words, when unregulated, each producer applies just over 40% too much effort, and realizes only 42% of the maximum possible profits. As a result of the high effort, the stock size is smaller than that would maximize the payoffs to all producers combined. This is the standard result for an unregulated, open access fishery.¹¹

68. When the CPR is regulated, the model predicts that contributions would be large enough to raise an initial cap set at 2 or less; that there would no contributions to change an initial cap set at 4, the group optimum; and that contributions would be large enough to lower initial caps set at 6, 7, and 8.

A Laboratory Experiment of Common Pool Resource Regulation and Lobbying

69. To test the predictions of our theoretical model, we designed and implemented a controlled laboratory experiment of a regulated CPR with lobbying.¹² Human subjects (students at the University of

^{11.} Readers should note that, since the number of producers is fixed, the 'open access' feature does not result in more producers.

^{12.} For details of the experimental design see Bwalya, Anderson, and Sutinen (2007) and Bwalya (2005).

Rhode Island) acted as users of a regulated common pool resource – a stylized ‘fishery’ – who could lobby to influence the regulation that caps the amount of effort allowed by each user. The student subjects play to earn experimental dollars, which are converted to actual dollars at the end of the experiment. In other words, the subjects’ use of the CPR produces real money earnings for them.¹³ We conducted the experiment at the Policy Simulation Laboratory at the University of Rhode Island, which consisted of ten sessions with 20 students in each session (a total of 140 student subjects). The first eight of the ten sessions involved inexperienced subjects; and the last two sessions involved experienced subjects who had participated in the experiment once and twice previously.

Design of the Experiment

70. The experiment had six rounds: the first round – the ‘baseline’ – in which subjects played an unregulated CPR game; and rounds two through six in which subjects played a game where the CPR is regulated and where subjects have the opportunity to lobby to change the regulation that caps the amount of effort.

71. Each of the latter five rounds consists of two steps. In the first step, each subject has the opportunity to lobby to change the cap (either up or down) by contributing to a fund. The effect of lobbying depends on the net contributions to increase or decrease the cap. A net contribution of 15 experimental dollars changes the cap by one unit in the experiment. The subjects are then notified of the final cap at the end of this step.

72. In the second step, subjects select their own effort level, which cannot exceed the final cap. To assist them in deciding on their effort level, they are shown a table of payoffs that depends on both their own level of effort and on the amount of effort chosen by the other subjects in their group. As explained above, their payoff is quadratic in their own effort and decreases as effort by others increases. Subjects do not know how much effort others will select, of course. Once all of the subjects’ effort levels are entered, the payoff to each subject is calculated and recorded in their personal record.

73. After a brief pause, the next round begins, each consisting of the two steps. At the end of the six rounds, each subject’s earnings were totaled and converted to real dollars at an exchange rate of USD 1 for 35 experimental dollars.

Results

74. Our experiment produced results on the *unregulated* CPR that are consistent with the theoretical prediction and with previous CPR experiments. Specifically, the average effort chosen by our subjects is not statistically different from the level predicted by our theoretical model.¹⁴

75. The experimental results on the regulated CPR are in part consistent with the predictions of the theoretical model, and in part not consistent with the predictions of the theoretical model. To explain, I first present the results on use behaviour (selection of effort). For final effort caps of seven and less, the model predicts that subjects will set their effort level at the value of the final cap. For final caps greater than seven, the model predicts that subjects will set their effort at seven. The first prediction is borne out: subjects most frequently set their effort at final caps levels of seven and less. But, the second prediction is partially borne out. For the final cap level of eight, subjects more frequently set their effort at eight – one unit above the predicted level – but the average level is not statistically different from seven, the predicted

¹³. As explained in more detail below, average earnings ranged from USD 27 – USD 29, plus a participation fee of USD 5.

¹⁴. There were, of course, variation in individual choices; but the modal (most frequent) choice was either the predicted level or just under the predicted level in all sessions.

level. For a final cap of 10, subjects most frequently chose the predicted effort level (seven), and the average level selected is not statistically different from seven. Overall, these experimental choice patterns are consistent with the predictions of the theoretical model.

76. The experimental results on lobbying in the *regulated* CPR are not wholly consistent with the theoretical predictions, however.

77. Our model predicts that subjects will contribute enough to lower caps that were initially too high (above 4, the level that would maximize group earnings), and enough to raise initial caps below the optimum. The results are that for caps that were initially low (1 and 2), over 50% of subjects contributed enough to raise low caps – which is consistent with the prediction. However, at initial caps set above the group optimum, contributions by the subjects were insufficient to change the higher caps. Fewer than 20% of the subjects made any contributions, and most contributions were to raise the cap, not lower it as predicted. In other words, subjects did not take advantage of the opportunity to restrict the choices of other subjects – even though doing so would make them better off.

78. Since these results are puzzling, we ran two additional sessions; one with once-experienced subjects, and another with twice-experienced subjects. In these sessions, contributions to lobbying declined substantially. Only for the lowest initial cap (1) was there a significant amount of contributions, but much less than by inexperienced subjects. As a result, the experienced subjects were able to raise the inefficient low caps less frequently than the inexperienced subjects; and the earnings for experienced subjects averaged just under USD 12, whereas earnings for inexperienced subjects averaged nearly USD 23.

79. The results indicate that free riding in lobbying is prevalent and grows in strength with experience. Bwalya, Anderson and Sutinen (2007) consider several possible reasons for the results, and conclude that the experimental evidence is consistent with a theory developed by Sandler and Arce (2003). They argue that contributing to a public good (lobbying in our case) yields benefits that are divided equally among contributors; whereas the benefits from using a CPR are allocated competitively. The competition for CPR benefits, if sufficiently strong, weakens the incentive to contribute to lobbying, the ‘public good.’ In our experiment, the competition for CPR earnings is stronger in the region where the cap exceeds the group optimum than in the region below the optimum. In other words, the incentive to contribute to lobbying is stronger (weaker) at initial caps below (above) the group optimum of 4.

Discussion

80. There are two key results from the experiment that deserve attention. The first is that fishing interests (users of the CPR in the experiment) are more likely to lobby to relax a regulation (raise the cap) than to lower it. This tendency occurs in cases where the regulation is both too restrictive (below the group optimum) and too lax (above the optimum). Our results indicate that the tendency to lobby to relax the regulation is strongest when the regulation is too restrictive (suboptimal). This result has implications for fishery management policy. It suggests that fishing interests will be more likely to actively lobby for increases in catch limits and less restrictive regulations than to lobby for tighter restrictions – even if it is in the groups’ best interest. It appears that the competition for fishery earnings weakens the incentive to effectively lobby for regulations that maximize group well being.

81. The second key result is that free riding in the contribution to lobbying will strengthen as participants gain experience. It appears that more experienced participants realize, or come to believe, that their contributions to changing a regulation are not worthwhile. Instead, they focus more on competing for earnings from their use of the CPR.

82. This decline in lobbying with experience contrasts sharply with actual practice. As summarised above, lobbying by fishing interests is very common, and the nature and extent of fisheries lobbying is comparable to other industries. Clearly, further research is needed to adequately reconcile and explain this result. One possible reason for the difference may be that all users are identical in our simple model. They each have the same payoffs. In practice, however, there are pronounced differences among producers. It is common, in most fisheries, for the vast majority of the catch to be landed by a small minority of producers – the so-called ‘highliners.’ In addition, some groups of producers often have more and easier access to policy makers and regulators, giving them greater influence.

83. The conventional wisdom in fisheries policy is that most of the time devoted to management deliberations is taken up with allocation debates and decisions – struggles over regulations that determine the relative shares of earnings by the different groups of producers. This suggests that much of the lobbying effort is focused on changing regulations that suit one group’s interest at the expense of other groups’ interests. Therefore, we plan to develop a model and design an experiment with heterogeneous users to formally test such hypotheses.

Conclusions and Future Directions

84. I have pulled together in this paper a few threads of political economy to examine some of the potential threats to successful fisheries governance and management. There appear to be several possible causes of the government failure that are pervasive in fisheries. The influence of special, private interests in the management and regulatory process may be the most serious such threat.

85. Elsewhere (Sutinen and Soboil 2003, Andersen and Sutinen 2003), I have listed a number of possible ways to correct or mitigate government failure in fisheries. The recommendations include the introduction of strong property rights and the devolution of rights and responsibilities to individuals and organizations of user groups. Implementing cost recovery and various forms of sustainable financing mechanisms also have the potential to restructure incentives to induce resource users to act in the public interest. Shielding fishery managers from the shortsighted tendencies of elected officials is another way to address the problem.

86. Yet, none of these recommendations can likely be implemented in the face of strong opposition from private interests in the fishery. We – the community of scholars and of policy makers – do not yet understand the policy interests of fishery producers, and the details of how they influence policy. The study summarized above (Bwalya, Anderson, and Sutinen 2007) is the only one available to date. More such experiments are clearly needed. In addition, more evidence from the field – documentation of lobbying activities by fishing interests, and of their influence on fishery policy – is also needed. And this is where the OECD Fisheries Committee could do the world a valuable service.

87. The 1997 study by the Fisheries Committee, *Towards Sustainable Fisheries: Economic Aspects of the Management of Living Marine Resources*, was and is unique. The evidence used in the study involved over 100 fisheries, many of which had lengthy management histories with very rich data. The fisheries were diverse, including complex multispecies fisheries and simpler single species fisheries, with various degrees of fluctuations in natural conditions, and with diverse social, economic, legal, and institutional contexts. The wide body of management experiences that the OECD was able to assemble for the study strengthened the results. Many of the results held to form despite differences in biological complexity, fluctuations, and differences in the human dimensions.

88. In my opinion, OECD is the only organization with the ability to assemble the evidence on what we might call the governance dynamics of fisheries policy, to study the underlying drivers of the threats identified above, and examine the many approaches to fishery policy reform that have been attempted in

OECD member countries. There have been some successful fishery policy reforms and, of course, there have some not so successful reforms. Why have some worked and others not? Have fishing interests been tamed, and enlisted to support such reforms? If so, how was this done? What can be done to hasten and spread successful reform? The OECD Fisheries Committee should try to answer these and other such questions.

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